INDEX TO VOLUME XII.*

A

Academy of Sciences, National, meeting at Philadelphia, 472.
Adams, E. P., electro-magnetic effects of moving charged spheres, 155.
Adams, G. I., Carboniferous and Permian age of the Red Beds of Oklahoma, 383.
Air, separation of least volatile gases in, Liveing and Dewar, 207.
Air-tight glass stop-cocks, Thiele and Eckardt, 463.
Alaska, Harriman Expedition, 472.
Almy, J. E., discharge-current from a surface of large curvature, 175.
Alternating current discharge, spectrum, Wright and Downs, 66.
American Philosophical Society, 400.
Argentine Republic, Meteorological Atlas, Delachaux, 88.
Argon, viscosity, Schultze, 76.
Arkansas, Geol. Survey, vol. v, 78.
Association, American, meeting at Denver, 174, 323.
— British, meeting at Glasgow, 324.

B

Bailey, E. H. S., Laboratory Guide to Qualitative Analysis, 462.
Barton, G. H., Elementary Lithology, 469.
Barus, C., on temporary set, 247; effect of temperatnre and moisture on the emanation of phosphorus, 327.
Beecher, C. E., Cambrian fossils of St. François Co., Missouri, 362; Eurypterid remains in the Cambrian of Missouri, 364.
Bermuda, additions to the Avifauna, Verrill, 64; nomenclature of birds of, Verrill, 470.
— death of fishes at, in 1901, Verrill, 88.
Birds of Bermudas, Verrill, 64; nomenclature, Verrill, 470.
Bolton, H. C., Chemical Bibliography, 89.

BOTANY.

African plants collected by Dr. Welwitsch in 1853–61, catalogue, 324.
Cocos nucifera, anatomy of, Winton, 265.
Milchsaft und Schleimsaft der Pflanzen, Molisch, 87.
Brazil, manganese deposits of Minas Geraes, Derby, 18.
British Museum catalogues, 89.
Browning, P. E., estimation of cæsium and rubidium, 301.

C

Cady, H. P., Laboratory Guide to Qualitative Analysis, 462.
Canada Geol. Survey, Annual Report, 79, 394.
Canadian Paleozoic corals, revision of the genera, Lambe, 79.
Cathode rays, Seitz, 389.
Chemical Analysis, Qualitative, Perkin, 76; Bailey and Cady, 462.
Chemischen Physiologie und Pathologie, Beiträge zur, Hofmeister, 474.
Chemistry, Bibliography of, Bolton, 89.

CHEMISTRY.

Acetylene, heat of dissociation and combustion of, Mixter, 347.
Acid nitrates, Wells and Metzger, 460.
— solutions, methods of standardizing, Hopkins, 461.
Alloys, Thermochemistry of, Baker, 460.
Ammonium, existence of, Ruff, 387.
— cyanate, Walker and Wood, 75.
Aniline and analogous bases, Sabatier and Senderens, 387.

* This Index contains the general heads, BOTANY, CHEMISTRY (incl. chem. physics), GEOLOGY, MINERALS, OBITUARY, ROCKS, and under each the titles of Articles referring thereto are mentioned.

CHEMISTRY.

Antimony pentachloride, double compounds of, Rosenheim and Stellman, 460.
— salt of quadrivalent, Wells and Metzger, 389.
Cæsium and rubidium, etc., estimation of, Browning, 301.
— and thorium, double chlorides, Wells and Willis, 191.
Cæsium-tellurium fluoride, Wells and Willis, 190.
Calcium, strontium and barium, estimation, Peters, 216.
Carolinium, a new element, 462.
Caro's acid, composition of, Baeyer and Villiger, 73.
Europium, a new element, Demarçay, 321.
Gooch-crucible, modified, Heraeus, 388.
Hydrogen, see **Hydrogen.**
Lead, radio-active, Hofmann and Strauss, 388.
Molybdic acid, estimation of, reduced by hydriodic acid, Gooch and Pulman, 449.
Persulphates, determination of, Peters and Moody, 367.
Phosphorus, emanation from, Barus, 327.
— ignition temperature, Eydman, 73.
Quantitative analysis, new method of, Thatcher, 320.
Quartz, vitrified, Shenstone, 74.
Radium, radio-activity produced by salts of, Curie and Debierne, 319.
Selenium in sulphuric acid, Jouve, 75.
Sodium thiosulphate, action on solutions of metallic salts, Norton, 115.
Supersaturated solutions, influence of magnetism, de Hemptinne, 75.
Tellurium, gravimetric determination, Gutbier, 389.
Thorium, new element associated with, Baskerville, 462.

Clerke, A. M., Unsolved Problems of Low Temperature Research, 393.
Colorado Valley, geology of the Little, Ward, 401.
Connecticut, river system of, Hobbs, 467.
Copper voltameter, new solution for, Shepherd, 49.
Cosmogony, mathematical notes to rival theories of, Fisher, 140.
Cuba, bituminous deposits, Peckham, 33.

D

Davis, B., behavior of small closed cylinders in organ-pipes, 185; locating nodes and loops of sound in the open air, 263.
Davis, J. W., motion of compressible fluids, 107.
Derby, O. A., manganese deposits of Minas Geraes, Brazil, 18.
Dewar, J., the nadir of temperature and allied problems, 168; separation of the least volatile gases of atmospheric air, 207.
Dielectric constant of paraffins, Hormell, 433.
Downs, E. S., spectrum of alternating current discharge, 66.
Duff, A. W., secondary undulations shown by tide-gauges, 123.

E

Earthquake investigation committee, publications, 90.
Electric arc, resistance and electromotive force, Duddell, 392.
— convection, magnetic effect of, Adams, 155; Pender, 173; Wilson, 322.
— discharge-current from surface of large curvature, Almy, 175.
— flow in gases, Stark, 77.
— resistance, experiments on high, Rood, 91.
Electro-Magnetic Phenomena, Treatise, Lyons, 77.
Electromotive force of the Clark- and the Weston-cell, Jaeger and Lindeck, 76.
Ether and gravitational matter through infinite space, Kelvin, 390.
Ethnology, publications of Bureau of American, 89.

F

Fauna of Porto Rico, reports, 471.
Field Columbian Museum, publications, 89.
Fisher, O., mathematical notes to rival theories of Cosmogony, 140.
Fluids, motion of compressible, Davis, 107.
Ford, W. E., calaverite, 225.

G

Galvanometers of high sensibility, Mendenhall and Waidner, 249.
Gases of atmospheric air, separation of the least volatile, Liveing and Dewar, 207.

GEOLOGICAL REPORTS.

Arkansas, vol. v, 78.
Canada, 79, 394.
Indiana, 466.
Iowa, vol. xi, 396.
Maryland, 77.
Minnesota, vol. vi, 395.
New Jersey, 466.
United States, 21st Annual Report, 465.

Geology, lectures on Economic, Branner and Newsom, 467.
— lectures on Elementary, Branner, 467.

GEOLOGY.

Amygdaloidal melaphyre of the Boston Basin, Burr, 79.
Bituminous deposits of Cuba, Peckham, 33.
Cambrian fossils of Missouri, Beecher, 362.
Carboniferous and Permian age of the Red Beds of Oklahoma, Adams, 383.
— terranes, time values of provincial, Keyes, 305.
Crinoid from the Hamilton of Charlestown, Ind., new, Wood, 297.
Dragons of the Air, Seeley, 396.
Eocene deposits of Maryland, Clark and Martin, 77.
— Mammalia in the Marsh collection, studies, Wortman, 143, 193, 281, 377, 421.
Etinde, volcano of the Cameroon Mts., Africa, Esch, 81.
Eurypterid remains in the Missouri Cambrian, Beecher, 364.
Glaciers, see **Glaciers.**
Helgeland, geology, Vogt, 82.
Ice ramparts, Buckley, 466.
Igneous rocks, classification, von Federov, 83.
Laccoliths of Highwood Mts. Montana, geology of, Weed and Pirsson, 1.
Limestones of Missouri, age and geological relations, Nason, 358.
Little Colorado valley, geology, Ward, 401.
Loess of Iowa City and vicinity, Shimek, 467.
Manganese deposits of Minas Geraes, Brazil, Derby, 18.
Paleozoic corals, Canadian, Lambe, 79.
River system of Connecticut, Hobbs, 467.
Vesuvius, explosive activity of, during April and May, 1900, Matteucci, 81.

Gibbs, J. Willard, receives Copley medal, 474.
Glaciers, ancient, in Tierra del Fuego and Antarctic, 464.
— in Switzerland in 1900, 465.
Goldschmidt, V., Harmonie und Complication, 325.
Gooch, F. A., Research Papers from the Kent Chemical Laboratory, Yale Univ., 321; molybdic acid reduced by hydriodic acid, 449.
Gooch-crucible, modified, Heraeus, 388.
Gray, E., Nature's Miracles, 325.

H

Harmonie und Complication, Goldschmidt, 325.
Harvard College Observatory, Annals, 474.
Helgeland, geology, Vogt, 82.
Helium, viscosity of, Schultze, 463.
Hoffmann, G. C., mineral occurrences in Canada, 447.
Hormell, W. G., dielectric constant of paraffins, 433.
Hydrogen, conductivity by negatively charged ions, Townsend and Kirkby, 76.
— diffusion through palladium, Winkelmann, 389.
— spectra of, Trowbridge, 310.

I

Indiana Geol. Survey, 25th Annual Report, 466.
Ions, conductivity produced in hydrogen, etc., by the motion of negatively charged, Townsend and Kirkby, 76.
— migration of, Gans, 463.
Iowa Geol. Survey, vol. xi, 396.

K

Kelvin, dynamical theory of light and heat, 391; ether and gravitational matter in space, 390.
Kent Chemical Laboratory, Research papers from, Yale University, Gooch, 321.
Keyes, C. R., time values of provincial Carboniferous terranes, 305.

L

Light and heat, dynamical theory of, Kelvin, 391.

Lithology, Outline of Elementary, Barton, 469.
Liveing, G. D., separation of the least volatile gases of atmospheric air, 207.
Lloyd, M. G., magnetic effects in tellurium, 57.
Low Temperature Research, Unsolved Problems, Clerke, 393.
Lyons, T. A., Treatise of Electro-Magnetic Phenomena, 77.

M

Magnetic effects of moving electric charges, Adams, 155; Pender, 173; Wilson, 322.
Marine invertebrates of Eastern Canada, Catalogue, Whiteaves, 395.
Marsh collection, Peabody Museum, Eocene mammalia of, Wortman, 143, 193, 281, 377, 421.
Maryland, Eocene deposits, Clark and Martin, 77.
McNairn, W. H., phlogopite crystals from Ontario, 398.
Mendenhall, C. E., galvanometers of high sensibility. 249.
Meteorite, the Veramin, Ward, 453.
— stony, of Perry, Alabama, 469.
— swarms. Högbom, 399.
Meteorites, iron, classification, Cohen, 86.
Meteorological Atlas of Argentine Republic, Delachaux, 88.
Mexico, Bulletin of the Geol. Institute, Ordeñez, 84.
Mineralogie, Handbuch der, Hintze, 399.
Mineralogy and Petrography at Yale University, Penfield and Pirsson, 398.

MINERALS.

Atacamite crystals, Chili, 100.
Barite, Kansas City, Mo., 47. Brookite, No. Carolina, 180.
Calaverite, California, 225. Calcite, 42. Caledonite, Montana, 47. Celestite, Salina Co., Kan., 48. Ceruléite, Chili, 85. Chrysoberyl, New York, 104. Conchite, 84, 469. Corundum, in syenite, Madras, 467.
Datolite, Quebec, 447.
Eleolite-syenite, Madras, 467.
Faujasite, Quebec, 448.
Galena, 45.
Hussakite, Brazil, 85.
Ktypteite, 469.
Lassallite, France, 85. Leadhillite, California, 46. Linarite, California, 46.
Marcasite, 414. Mercuric iodide, New South Wales, 98. Molybdophyllite, Sweden, 469.
Octahedrite, No. Carolina, 180.
Pectolite, New Jersey, 99. Phlogopite crystal, Ontario, 398. Pyrite, New Jersey, 45; 414. Pyroxene, Tennessee, 105.
Quartz, vitrified, Shenstone, 74.
Realgar, Washington, 103.
Seligmannite, Switzerland, 85. Sulvanite, So. Australia, 85. Stannite, crystallization, 469. Synchisite, Greenland, 469.
Termierite, France, 85. Torrensite, 85.
Vesuvianite, New Mexico, 104. Viellaurite, 85. Violaite, 86.
Minnesota, Geol. Survey, vol. vi, 395.
Missouri, Cambrian limestones, Nason. 358; fossils of, Beecher, 362, 364.
Mixter, W. G., heat of dissociation and combustion of acetylene, etc., 347.
Montana, laccoliths of Highwood Mts., Weed and Pirsson, 1.
Moody, S. E., determination of persulphates, 367.
Moses, A. J., mineralogical notes, 98.

N

Narkose, Studien über die, Overton, 325.
Nason, F. L., age and geol. relations of the St. Joseph and Potosi limestones of Missouri, 359.
Nature's Miracles, Gray, 325.
New Jersey, Geol. Survey, 466.
Nodes and loops of sound in the open air, method of locating, Davis, 263.
Norton, J. T., Jr., action of sodium thiosulphate on solutions of metallic salts, 115.
Noyes, W. A., Elements of Qualitative Analysis, 462.

O

OBITUARY—

Lacaze Duthiers, Baron de, 326.
Le Conte, Joseph, 174, 248.
Nordenskiöld, Adolf Erik, 326.
Koenig. Rudolph, 474.
Schimper, A. F. W., 474.
Schott, Charles Anthony, 326.
Schur, Dr. Wilhelm, 326.

Oklahoma, Carboniferous and Permian age of the Red Beds of, Adams, 383.
Organ-pipes, behavior of small closed cylinders in, Davis, 185.

P

Paraffins, dielectric constant of, Hormell, 433.
Peckham, H. E., bituminous deposits of Cuba, 33.
Penfield, S. L., calaverite, 225; Contributions to Mineralogy and Petrography from Sheffield Scientific School, 398.
Perkin, F. M., Qualitative Chemical Analysis, 76.
Peters, C. A., calcium, strontium and barium, estimation of, 216; determination of persulphates, 367.
Phasenlehre, die heterogenen Gleichgewichte vom Standpunkte der, Roozeboom, 463.
Phosphorus, effect of temperature and moisture on the emanation of, Barus, 327.
Photometry of the ultra-violet rays, Kreusler, 463.
Pirsson, L. V., geology of laccoliths in Highwood Mts., Montana, 1; Contributions to Mineralogy and Petrography from Sheffield Scientific School, 398.
Porto Rico, reports on Fauna, 471.
Pulman, O. S., Jr., molybdic acid reduced by hydriodic acid, 449.

Q

Qualitative Analysis, Elements, Noyes, 462.
— — Laboratory Guide to, Bailey and Cady, 462.

R

Radio-activity produced by salts of radium, Curie and Debierne, 319.
— of lead, Hofmann and Strauss, 388.
Resistance, effect on, of amalgamated gases, Rollins, 322.
Rhees, W. J., Origin and History of the Smithsonian Institution, 473.
Robinson, H. H., octahedrite and brookite from No. Carolina, 180.
ROCKS.
Corundum-syenite and eleolite-syenite containing graphite, Madras, Holland, 467.
Igneous rocks, classification, von Federov, 83.
— of Cameroon Mts., Esch, 81.
Laccoliths of Highwood Mts., Montana, Weed and Pirsson, 1.
Kedabekite, 247.
Kenyte, 247.
Melaphyre of Boston Basin, Burr, 79.
Peridotite, altered, 468.
Perknite, Turner, 468.
Rogers, A. F., mineralogical notes, 42.
Rollins, W., effect of amalgamated gases on resistance, 322.
Rood, O. N., experiments on high electrical resistance, part II, 91.
Roozeboom, H. W. B., die heterogenen Gleichgewichte vom Standpunkte der Phasenlehre, 463.
Royal Society, Copley medal, 474.

S

Scientia, Bohn, 89.
Secondary undulations shown by tide-gauges, Duff, 123.
Seeley, H. G., Dragons of the Air, 396.
Shepherd, W. K., new solution for copper voltameter, 49.
Smithsonian Institution, Annual Report, 473; Origin and History, 1835–1899, vol. i, Rhees, 473.
Sound, experiments in, Davis, 185, 263.
Spectra, infra-red, of the alkali-metals, photography, Lehman, 390.
Spectrum of the alternating current discharge, Wright and Downs, 66.
Stokes, H. N., pyrite and marcasite, 414.

T

Tellurium, magnetic effects in, Lloyd, 57.
Temperature, the nadir of, and allied problems, Dewar, 168.
— Unsolved Problems of Low, Clerke, 393.
Temporary set, Barus, 247.
Thatcher, R. W., new method of quantitative analysis, 320.
Tide-Gauge observations, Duff, 123.
Trowbridge, J., spectra of hydrogen, 310.

U

United States Geol. Survey, 21st Annual Report, 465.
— — Naval Observatory, publications, 90.

V

Verrill, A. E., death of fishes at Bermuda in 1901, 88.
Verrill, A. H., additions to the Avifauna of the Bermudas, 64; nomenclature of Bermuda birds, 470.
Vesuvius, explosive activity in April, May, 1900, Matteucci, 81.

W

Waidner, C. W., galvanometers of high sensibility, 249.
Ward. H. A., Veramin meteorite, 453.
Ward, L. F., geology of the Little Colorado Valley, 401.
Weed, W. H., geology of laccoliths in Highwood Mts., Montana, 1
Wells, H. L., cæsium-tellurium fluoride, 190; double chlorides of cæsium and thorium, 191.
Willis, J. M., cæsium-tellurium fluoride, 190; double chlorides of cæsium and thorium, 191.
Winton, A. L., anatomy of Cocos nucifera, 265.
Wood, E., new Crinoid from the Hamilton of Charlestown, Ind., 297.
Wortman, J. L., studies of the Eocene Mammalia in the Marsh collection, 143, 193, 281, 377, 421.
Wright, A. W., spectrum of alternating current discharge, 66.

Y

Yale Bicentennial publications, 321, 398.

Z

Zoologisches Addressbuch, 90.
Zoology, Shipley and MacBride, 472.
— Practical, Parker and Parker, 472.

ZOOLOGY.

Avifauna of the Bermudas, additions to, Verrill, 64; nomenclature of, 470.
Fauna of Porto Rico, 471.
Fishes, death of, at Bermuda in 1901, Verrill, 88.